

CLAIM AMENDMENTS

1 - 77. (canceled)

1           78. (new) A device for treating neuronal brain  
2 pathologies involving the neurons of a large neuron population  
3 firing in a synchronized manner, the device comprising:  
4           a plurality of electrodes adapted for stimulating  
5 respective neuron subpopulations of the large neuron population;  
6 and  
7           means connected to the electrodes for generating and  
8 feeding therethrough to the respective neuron subpopulations  
9 stimulation signals each comprised of a burst of pulses having a  
10 respective predetermined frequency capable of resetting the firing  
11 of the neurons of the respective subpopulation and with the burst  
12 fed to each subpopulation time shifted of the bursts fed to the  
13 other subpopulations such that each subpopulation is reset at a  
14 different point in time and fires out of phase with the other  
15 subpopulations.

1           79. (new) The device defined in claim 78 wherein each  
2 burst includes 1 to 20 pulses.

1           80. (new) The device defined in claim 78 wherein the  
2 bursts are periodically administered by the respective electrodes.

1           81. (new) The device defined in claim 78 wherein the  
2 bursts all have the same time duration.

1           82. (new) The device defined in claim 78 wherein the  
2 bursts are identical.

1           83. (new) The device defined in claim 78 wherein there  
2 are at least three such electrodes and the time offsets between the  
3 bursts of the electrodes are identical.

1           84. (new) A method of treating neuronal brain  
2 pathologies in which a large population of brain neurons fire in a  
3 synchronized manner, the method comprising the step of:  
4           stimulating each of a plurality of subpopulations of the  
5 large population with a respective stimulation signal each  
6 comprised of a burst of pulses having a respective predetermined  
7 frequency capable of resetting the firing of the neurons of the  
8 respective subpopulation with the burst fed to each subpopulation  
9 time shifted to the bursts fed to the other subpopulations such  
10 that the burst reset the neurons of each subpopulation at a  
11 different point in time to fire out of phase with the neurons of  
12 the other subpopulations.

1                   85. (new) The method defined in claim 78 wherein each  
2 burst includes 1 to 20 pulses.

1                   86. (new) The method defined in claim 78 wherein the  
2 bursts are periodically administered by the respective electrodes.

1                   87. (new) The method defined in claim 78 wherein the  
2 bursts all have the same time duration.

1                   88. (new) The method defined in claim 78 wherein the  
2 bursts are identical.

1                   88. (new) The method defined in claim 78 wherein there  
2 are at least three such electrodes and the time offsets between the  
3 bursts of the electrodes are identical.